Graphical Hurricane Local Statement Product Description Document

Part I - Mission Connection

a. Product Description - The Graphical Hurricane (or Typhoon) Local Statement (gHLS) complements the text Hurricane Local Statement (HLS) by providing a graphical depiction of threat levels for the following tropical cyclone hazards: wind, surge, flash flood, tornado, and marine (seas). Each hazard graphic is specific to the Weather Service Forecast Office's (WFO's) county warning area (CWA) and marine area of responsibility (MAOR), and depicts the geographical distribution and level of threat of each hazard. In addition, a combined hazard table contains bar charts of the five threats to compare threat levels relative to one another.

b. Purpose - The hazard graphics are designed primarily as a planning tool for decision makers potentially impacted by tropical cyclones. The graphics enable forecasters to convey pertinent severe weather information in an easy to interpret, consistent, and highly accessible format.

c. Audience - The target audience for the suite of graphics includes state/local emergency managers, government agencies, media, as well as business managers and the general public. Anyone requiring location-specific hazardous weather threat information during tropical cyclone situations will have decision-making information available to them.

d. Presentation Format - The Advanced Weather Interactive Processing System (AWIPS) Graphical Forecast Editor (GFE) is used to create five plan view maps (one for each hazard), along with a combined hazard table. The graphics are then uploaded to the World Wide Web (WWW) and automatically ingested into a highly navigable and interactive web page. To compliment each graphic, descriptive information is extracted from the textual HLS and simultaneously displayed. The web page also contains a considerable amount of preparedness and safety information as well as a "one stop shopping" collection of informative links and supporting documentation for users during tropical cyclone situations.

e. Feedback Method - Continuous feedback is available via a web page email link to the developers. Many compliments and worthy suggestions have been received and incorporated into the product suite. A formal evaluation period was established after the experimental product was first introduced, with the user survey resulting in valuable comments from state/local emergency managers, nearby government agencies, local media, other WFOs, and the public. The gHLS has been presented at numerous public and professional forums since 1999, resulting in extensive feedback with suggested improvements included within iterative upgrades.

Technical comments for the gHLS product developer may be addressed to:

National Weather Service
Attn: David Sharp
421 Croton Road
Melbourne, FL 32935
or e-mail comments to: david.sharp@noaa.gov

Additional comments specific to South Florida's graphical Hurricane Local Statement can be sent to:

National Weather Service
Attn: Pablo Santos
11691 SW 17th Street
Miami, FL, 33165
or email comments to: Pablo.Santos@noaa.gov

Part II - Technical Description

a. Format & Science Basis - The gHLS is comprised of a combined tropical cyclone hazard table (bar chart revealing a level of threat from 'none' to 'extreme' for each hazard; wind, surge, flash flood, tornado, and marine) and a series of five plan view maps, one for each hazard listed above. All gHLS products depict the threats specific to the WFO CWA and MAOR for the duration of the event. The term "threat" (as it relates to life, property, and economic interest) serves as a bridging concept that allows forecasters to speak about a hazard beforehand.

Determinations rely on official National Hurricane Center (NHC) track, intensity, and wind radii forecasts (accounting for average error), along with other national center guidance (from the Storm Prediction Center and the Hydrometeorological Prediction Center). Importantly, the WFO adds mesoscale detail to more accurately specify the degree and geographic extent of each threat.

The levels of threat for each hazard are precisely defined by considering the potential impact (forecast intensity compared against historical consequences) together with the likelihood of occurrence. For example, threat level definitions for the wind hazard range from minimal tropical storm conditions (39-57 mph...very low threat) to Saffir-Simpson Category 3+ hurricane conditions (110+ mph...extreme threat). The defined surge threat levels range from very low surge heights (2 feet or less...very low threat) to extreme surge heights (13 feet or more...extreme threat), and marine threats range from Beaufort scale 4 (winds driving 4-6 foot seas...very low threat) to Beaufort scale 12+ (hurricane winds driving seas above 50 feet...extreme threat). Flash flood levels of threat range from a very low likelihood for minor flash flooding (very low threat) to at least a moderate likelihood of major flash flooding (extreme threat). Finally, tornado threat levels range from a very low likelihood of minor tornado damage (very low threat) to at least a moderate likelihood of major tornado damage (extreme threat).

An archived example of a historical event is available on the WWW at: **http://www.srh.noaa.gov/mlb/ghls/hlsdemo_main.html**

The South Florida graphical Hurricane Local Statement, issued specifically by the NWS office in Miami, also incorporates probabilistic wind speed information for tropical storm as well as hurricane force winds. This is also an experimental product created by the National Hurricane Center. The product description document for these probabilities wind speeds can be found at:

http://www.nhc.noaa.gov/feedback-pws-graphics.shtml

b. Product Availability - The gHLS is available whenever a tropical cyclone watch/warning is in effect for any portion of the WFO's CWA or MAOR. A new product suite is produced and disseminated approximately one hour after each Tropical Cyclone Public (TCP) bulletin issued by NHC, at least once every 6 hours. The gHLS products may be issued more frequently, e.g. every 2-3 hours, near the time of landfall. Graphics always depict the greatest level of threat for a location at any time during the remainder of the event.

Realtime access to the gHLS for the South Florida are can be obtained on the WWW at: **http://www.srh.noaa.gov/mfl/newpage/ghls/hls_main.html**

c. Additional Information

(1) An overview of the gHLS concept, design, and utility can be obtained in Corel Presentation format from: **http://www.srh.noaa.gov/mlb/ghls/presentation/ghls_2002update.shw**

(2) Several publications and presentations concerning the gHLS are available online at the following URLs:

· Sharp, D.W., D.L. Jacobs, J.C. Pendergrast, S.M. Spratt, P.F. Blottman, and B.C Hagemeyer: Graphically depicting east-central Florida hazardous weather forecasts, NOAA Tech. Attach. SR/SSD 2000-27. 4 pp **http://www.srh.noaa.gov/mlb/ghwo_ghls_ta.html**

· Sharp, D.W., and S.M. Spratt, 2001: Graphically Depicting Threat Assessment Information for Flood Situations in East Central Florida, Symposium on Precipitation Prediction: Extreme Events and Mitigation; 81st Annual AMS Meeting, Albuquerque, NM, 378-380. **http://www.srh.noaa.gov/MLB/floodsymp1.htm**

· Sharp, D.W., and S.M. Spratt, 2000: Graphically Depicting the Hurricane Local Statement. Presented to the NOAA Hurricane Conference, Miami, FL. **http://www.srh.noaa.gov/mlb/sms/ihc55_ghls.html**

· S.M. Spratt and D.W. Sharp, 2001: The Graphical Hurricane Local Statement. Presented to the Florida Tropical Weather Workshop, Miami, FL. **http://www.srh.noaa.gov/mlb/tcworkshop_2001/slide1.html**

(1) The gHLS was designed by David Sharp, David Jacobs, Scott Spratt, Matthew Volkmer, and Peter Blottman, WFO Melbourne, FL and ported over to WFO Miami, FL. Critical reviews and significant suggestions were also provided by representatives from the other FL WFOs, as well as representatives from NHC.